

OUTSULATION[®] MD (NC) SYSTEM

An exterior wall and finish system with moisture drainage

DSC168NC

Outsulation MD / Outsulation MD NC System Specifications

INTRODUCTION

This document contains the Manufacturer's Standard Specification for the Outsulation MD System(s). These specifications follow the Construction Specification Institute's 3-part format.

TAILORING THE DRYVIT® MANUFACTURER'S SPECIFICATIONS TO YOUR PROJECT.

These specifications cover all the common ways of using the Outsulation MD System(s). Most projects use only a few of the possible combinations of these materials and methods. To tailor the specifications to your project, simply use those sections which apply. Also, it may be prudent to place certain parts of the Outsulation MD Specification(s) in other parts of the project's total specification, such as sealants and framing. The project design professionals are responsible for ensuring that the project specifications are suitable for the project. For assistance in preparing your specification, contact your Dryvit Distributor or Dryvit Systems Canada.

UNITS

English Units are included in parentheses after the Standard International (SI) equivalents thus:

12.7 mm (1/2 in) 16 Kg/m³ (1.0 pcf)

Please note that the conversions may not be exact but rather represent commonly used equivalents.

WARNING

The Outsulation MD System(s) are designed as drainage wall systems and are detailed to discharge incidental moisture from within the System(s). Specifications should be followed and proper details adhered to, in order to prevent water intrusion, resulting in possible damage to the System(s) or other building elements. Care should be taken to insure that all building envelope elements, including without limitations, roof designs, windows, flashings, sealants, etc., are compatible with the system(s).

DISCLAIMER

Information contained in this specification conforms to standard detail and product recommendations for the installation of the Dryvit Outsulation MD System products as of the date of publication of this document and is presented in good faith. Dryvit Systems Canada assumes no liability, expressed or implied, as to the architecture, engineering or workmanship of any project. To insure that you are using the latest, most complete information, visit our website at www.dryvit.com or contact Dryvit Systems Canada, at

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Stouffville, Ontario
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* The Trained Contractor Registration Certificate referenced in Section 1.06.A.2 and 1.06.A.4 indicates certain employees of the company have been instructed in the proper application of Dryvit products and have received copies of Dryvit's Application Instructions and Specifications. The Trained Contractor Registration Program is not an apprenticeship or endorsement. Each trained contractor is an independent company experienced in the trade and bears responsibility for its own workmanship. Dryvit Systems Canada assumes no liability for the workmanship of a trained contractor.

**DRYVIT SYSTEMS CANADA
MANUFACTURER'S SPECIFICATION
SECTION 07240
OUTSULATION MD SYSTEM
EXTERIOR INSULATION AND FINISH SYSTEM CLASS PB**

PART I GENERAL**1.01 SUMMARY**

- A. This document is to be used in preparing specifications for projects utilizing the Dryvit Outsulation MD System. For complete product description and usage refer to:
1. Dryvit Outsulation MD System Product Data Sheet, DSC443.
 2. Dryvit Outsulation MD System Application Instructions, DSC169.
 3. Dryvit Outsulation MD System Installation Details, DSC167.
- B. Related Sections
1. Unit Masonry – Section 04200
 2. Concrete – Sections 03300 and 03400
 3. Light Gauge Cold Formed Steel Framing – Section 05400
 4. Wood Framing – Section 06100
 5. Sealant – Section 07900
 6. Flashing – Section 07600

1.02 REFERENCES

- A. Section Includes
1. CAN/ULC-S101 M89 Standard Methods of Fire Endurance Test
 2. CAN/ULC-S114 Standard Method of Test for Determination of Non-combustibility in Building Materials
 3. CAN/ULC-S134 Fire Test for Exterior Wall Assemblies
 4. CAN/ULC-S102 Surface Burning Characteristics of Building Materials and Assemblies
 5. Canadian Construction Materials Centre – Technical Guide for EIFS Evaluation
 6. CAN/ULC-S716.1 Standard for Exterior Insulation and Finish Systems (Materials and Systems)
 7. ASTM B 117 (Federal Test Standard 141A Method 6061) Standard Practice for Operating Salt Spray (Fog) Apparatus
 8. ASTM C 150 Standard Specification for Portland Cement
 9. ASTM C 297 Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions
 10. ASTM C 1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
 11. ASTM C 1396 (formerly C 79) Standard Specification for Gypsum Board
 12. ASTM D 968 (Federal Test Standard 141A Method 6191) Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
 13. ASTM D 2247 (Federal Test Standard 141A Method 6201) Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
 14. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
 15. ASTM D 4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
 16. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
 17. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials
 18. ASTM E 119 Standard Method for Fire Tests of Building Construction and Materials
 19. ASTM E 283 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen
 20. ASTM E 330 Test Method for Structural Performance of Exterior Windows, Doors and Curtain Walls by Uniform Static Air Pressure Difference
 21. ASTM E 331 Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference
 22. ASTM E 2098 Test Method for Determining the Tensile Breaking Strength of Glass Fiber Reinforcing Mesh for use in Class PB Exterior Insulation and Finish Systems (EIFS), after Exposure to Sodium Hydroxide Solution.
 23. ASTM E 2134 Test Method for Evaluating the Tensile-Adhesion Performance of Exterior Insulation and Finish Systems (EIFS)
 24. ASTM E 2273 Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies
 25. ASTM E 2430 Standard Specification for Expanded Polystyrene (EPS) Thermal Insulation Boards for use in Exterior Insulation and Finish Systems (EIFS)
 26. ASTM E 2485 (formerly EIMA Std. 101.01) Standard Test Method for Freeze-Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water-Resistive Barrier Coatings

27. ASTM E 2486 (formerly EIMA Std. 101.86) Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS)
28. ASTM G 155 (Federal Test Standard 141A Method 6151) Standard Practice for Operating-Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
29. DSC167 Dryvit Outsulation MD System Installation Details
30. DSC131, Dryvit Expanded Polystyrene Insulation Board Specification
31. DSC151, Custom Brick™ Polymer System Specifications for Use On Vertical Walls
32. DSC152, Dryvit Cleaning and Recoating
33. DSC153, Dryvit Expansion Joints and Sealants
34. DSC159, Dryvit Water Vapor Transmission
35. DSC456, Rapidry DM™ 35-50 or DS457, Rapidry DM™ 50-75 Data Sheets
36. DSC494, Dryvit AquaFlash® System
37. Mil Std E5272 Environmental Testing
38. Mil Std 810B Environmental Test Methods
39. NFPA 268 Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source.
40. NFPA 285 Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus

1.03 DEFINITIONS

- A. Base Coat: Material used to encapsulate one or more layers of reinforcing mesh fully embedded that is applied to the outside surface of the EPS.
- B. Building Expansion Joint: A joint through the entire building structure designed to accommodate structural movement.
- C. Contractor: The contractor that installs the Outsulation MD System(s) to the substrate.
- D. Dryvit: Dryvit Systems Canada, the manufacturer of the Outsulation MD System(s).
- E. Expansion Joint: A structural discontinuity in the Outsulation MD System(s).
- F. Finish: An acrylic-based coating, available in a variety of textures and colors that is applied over the base coat.
- G. Insulation Board: Expanded polystyrene (EPS) insulation board, which is affixed to the substrate.
- H. Panel Erector: The contractor who installs the panelized Outsulation MD System(s).
- I. Panel Fabricator: The contractor who fabricates the panelized Outsulation MD System(s).
- J. Reinforcing Mesh: Glass fiber mesh(es) used to reinforce the base coat and to provide impact resistance.
- K. Sheathing: A substrate in sheet form.
- L. Substrate: The material to which the Outsulation MD System(s) are affixed.
- M. Substrate System: The total wall assembly including the attached substrate to which the Outsulation MD System(s) are affixed.

1.04 SYSTEM DESCRIPTION

- A. General: The Dryvit Outsulation MD System(s) are an Exterior Insulation and Finish System (EIFS), Class PB, utilizing a cavity wall concept with capability for moisture drainage. The system consists of a water-resistive barrier coating (air/water-resistive barrier), an adhesive, grooved expanded polystyrene insulation board, internal vinyl tracks (Dryvit Track™, Vent Track™ or Dryvit AquaDuct), Dryvit Vent Assembly™, Dryvit Starter Strip, base coat, reinforcing mesh(es) and finish.

The use of the descriptor Outsulation MD is meant to apply to both Outsulation MD and Outsulation MD NC.

Where meant to apply specifically to Outsulation MD NC and not applicable to Outsulation MD, "NC" will be added.

The Outsulation PE (Pressure Equalized) represents an option to the designer whereby the added performance function of pressure equalization is built into the system. All considerations directing the selection of system type as they relate to noncombustible construction are applicable to the PE, or PE NC option. Where requirements exist which are unique to the PE system, they will be noted. All MD descriptions and requirements are otherwise applicable and are considered addressed by this specification where MD is noted.

NOTE: If you are specifying Outsulation PE it is recommended that you replace MD with PE throughout the specification.

- B. Code Related: The Outsulation MD System is considered a combustible exterior wall assembly permitted for use in noncombustible construction as per the National Building Code of Canada Section 3.1.5. and may also be used in combustible construction as per Section 3.1.4.
 1. The Outsulation MD NC System (NC denoting noncombustibility) utilizing a noncombustible protective material and satisfying the requirements of Sentence 3.2.3.7.(7) may be used in applications where compliance with this sentence is applicable as per the provisions of Article 3.2.3.7. Exposing Building Faces.
- C. Methods of Installation
 1. Field Applied: The Outsulation MD System is applied to the substrate system in place.
 2. Panelized: The Outsulation MD System is shop-applied to the prefabricated wall panels.

D. Design Requirements:**1. Acceptable substrates for the Outsulation MD System shall be:**

- a. Exterior grade gypsum sheathing meeting ASTM C 1396 (formerly C 79) requirements for water resistant core or Type X core at the time of application of the Outsulation MD System.
- b. Exterior sheathing having a water-resistant core with fiberglass mat facers meeting ASTM C 1177.
- c. Exterior fiber reinforced cement or calcium silicate boards.
- d. Unglazed brick, cement plaster, concrete or masonry.
- e. Galvanized expanded metal lath 1.4 or 1.8 kg/m² (2.5 or 3.4 lbs/yd²) installed over a solid substrate.

SPEC NOTE: The use of exterior grade paper-faced gypsum sheathing should be limited to projects where limited exposure is expected.

2. Deflection of the substrate systems shall not exceed 1/240 times the span.**3. The substrate shall be flat within 6.4 mm (1/4 in) in a 1.2 m (4 ft) radius.****4. The slope of inclined surfaces shall not be less than 6:12, and the length shall not exceed 305 mm (12 in).****5. All areas requiring an impact resistance classification higher than "standard", as defined by ASTM E 2486 (formerly EIMA Standard 101.86), shall be as detailed in the drawings and described in the contract documents. Refer to Table 1.04.D.1.d of this specification.****6. Expansion Joints:**

- a. Design and location of expansion joints in the Outsulation MD System is the responsibility of the project designer and shall be noted on the project drawings. As a minimum, expansion joints shall be placed at the following locations:

- 1) Where expansion joints occur in the substrate system.
- 2) Where building expansion joints occur.
- 3) At floor lines in wood frame construction.
- 4) At floor lines of non-wood framed buildings where significant movement is expected.
- 5) Where the Outsulation MD System abuts dissimilar materials.
- 6) Where the substrate type changes.
- 7) Where prefabricated panels abut one another.
- 8) In continuous elevations at intervals not exceeding 23 m (75 ft).
- 9) Where significant structural movement occurs, such as changes in roofline, building shape or structural system.

7. Secondary Barriers

- a. The use of secondary barriers is a design requirement of this system and EIFS assemblies as governed by conformance to CCMC evaluation and the provisions of CAN/ULC-S716.1 Standard for Exterior Insulation and Finish Systems Materials and Systems. This secondary barrier may also be used to provide the plane of air tightness as part of an air barrier system. All Dryvit secondary barriers meet the requirements for air barrier classification have an air leakage rate of <0.05L/s.m² @ 75Pa. Use, location and performance characteristics of the air barrier system shall be determined by the design professional and shall meet the requirements of Part 5 of the applicable Canadian (national or provincial) building code for the given project.

8. Terminations

- a. Prior to applying the Dryvit Outsulation MD System, wall openings shall be treated with Dryvit AquaFlash System or Flashing Tape. Refer to Dryvit Outsulation MD System Installation Details (DSC167).
- b. The Outsulation MD System shall be held back from adjoining materials around openings and penetrations such as windows, doors, and mechanical equipment a minimum of 19 mm (3/4 in) for sealant application. See Dryvit's Outsulation MD System Installation Details, DSC167.
- c. The system shall be terminated a minimum of 203 mm (8 in) above finished grade.

d. Sealants

- 1) Shall be manufactured and supplied by others.
- 2) Shall be compatible with the Outsulation MD System materials. Refer to current Dryvit Publication DSC153 for listing of sealants tested by sealant manufacturer for compatibility.
- 3) The sealant backer rod shall be closed cell.

9. Compartmentalization – System compartmentalization is required for Outsulation PE only and shall be done in accordance with applicable details as found in DSC167.

- a. Compartment sizes shall be determined by the project's design professional. Compartment size shall not exceed 27.8m² (300ft²).
- b. For all other compartment size calculations, vent area per vent assembly is considered to be 1452mm² and cavity size of 0.0025m³/m² of wall area. NRC Construction Technology Update #17 provides guideline formulary.

- 10. Vapour Barriers - The use and location of vapor retarders within a wall assembly is the responsibility of the project designer and shall comply with the requirements of Part 5 of applicable building code. The type and location shall be noted on the project drawings and specifications. Vapor retarders may be inappropriate in certain climates and can result in condensation within the wall assembly. Refer to Dryvit Publication DSC159 for additional information.
- 11. Dark Colors - The use of dark colors must be considered in relation to wall surface temperature as a function of local climatic conditions. Use of dark colors in high temperature climates can affect the performance of the system.
- 12. Flashing: Shall be provided at all roof-wall intersections, windows, doors, chimneys, decks, balconies and other areas as necessary to prevent water from entering behind the Outsulation MD System.

D. Performance Requirements

- 1. The Outsulation MD System shall have been tested as follows:
 - a. Air/Water-Resistive Barrier Coating

TEST	TEST METHOD	CRITERIA	RESULTS
Tensile Bond	ASTM C 297/E 2134 ICC ES (AC 212)*	Minimum 104 kPa (15 psi)	Substrate: Minimum 131 kPa (19 psi) Flashing: Minimum 2970 kPa (431 psi)
Freeze-thaw	ASTM E 2485/ICC-ES Proc. ICC ES (AC 212)*	No deleterious effects after 10 cycles	Passed - No deleterious effects after 10 cycles
Water Resistance	ASTM D 2247 ICC ES (AC 212)*	No deleterious effects after 14 days exposure	No deleterious effects after 14 days exposure
Water Vapor Transmission	ASTM E 96 Proc. B ICC ES (AC 212)*	Vapor Permeable	7 perms
Air Leakage	ASTM E 283	No Criteria	0.6 l/min/m ² (0.002 cfm/ft ²)
Structural Performance	ASTM E 1233 Proc. A ICC ES (AC 212)*	Minimum 10 positive cycles at 1/240 deflection; No cracking in field, at joints or interface with flashing	Passed
Racking	ASTM E 72 ICC ES (AC 212)*	No cracking in field, at joints or interface with flashing at net deflection of 3.2 mm (1/8 inch)	Passed
Restrained Environmental	ICC-ES Procedure ICC ES (AC 212)*	5 cycles; No cracking in field, at joints or interface with flashing	Passed
Water Penetration	ASTM E 331 ICC ES (AC 212)*	No water penetration beyond the inner-most plane of the wall after 15 minutes at 137 Pa (2.86 psf)	Passed
Weathering UV Exposure	ICC ES Proc. ICC ES (AC 212)*	210 hours of exposure	Passed
Accelerated Aging	ICC ES Proc. ICC ES (AC 212)*	25 cycles of drying and soaking	Passed
Hydrostatic Pressure Test	AATCC 127 ICC ES (AC 212)*	21.6" water column for 5 hours	Passed
Surface Burning Characteristics	ASTM E 84	Flame Spread < 25 Smoke Developed < 450	Passed

*AC 212 – Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers Over Exterior Sheathing

b. Durability

TEST	TEST METHOD	CRITERIA	RESULTS
CCMC Durability under Environmental Cyclic Conditions	CCMC EIFS Technical Guide Section 5.6.1 as per Appendix A2	No water penetration. No cracking, crazing, blistering or sagging of finish or base coat. Etc. Min 60 cycles	Passed (Primus®)
Abrasion Resistance	ASTM D 968	No deleterious effects after 500 liters (528 quarts)	No deleterious effects after 1000 liters (1056 quarts)
Accelerated Weathering	ASTM G 155 Cycle 1	No deleterious effects after 2000 hours	No deleterious effects after 5000 hours
	ASTM G 154 Cycle 1 (QUV)		No deleterious effects after 5000 hours
Freeze-Thaw	ASTM E 2485 (formerly EIMA 101.01)	No deleterious effects after 60 cycles	Passed - No deleterious effects after 90 cycles
	ASTM C 67 modified	No deleterious effects after 60 cycles	Passed - No deleterious effects after 60 cycles
	ASTM E 2485/ICC-ES Proc. ICC ES (AC 235)***	No deleterious effects after 10 cycles	Passed - No deleterious effects after 10 cycles
Mildew Resistance	ASTM D 3273	No growth during 28 day exposure period	No growth during 60 day exposure period
Water Resistance	ASTM D 2247	No deleterious effects after 14 days exposure	No deleterious effects after 42 days exposure
Taber Abrasion	ASTM D 4060	N/A	Passed 1000 cycles
Salt Spray Resistance	ASTM B 117	No deleterious effects after 300 hours exposure	No deleterious effects after 1000 hours exposure
Water Penetration	ASTM E 331 ICC ES (AC 235)***	No water penetration beyond the inner-most plane of the wall after 15 minutes at 137 Pa (2.86 psf)	Passed 15 minutes at 137 Pa (2.86 psf)
Water Vapor Transmission	ASTM E 96 Procedure B	Vapor permeable	EPS 5 perm-inch Base Coat* 40 Perms Finish** 40 Perms
Drainage Efficiency	ASTM E 2273 ICC ES (AC 235)***	Minimum Drainage Efficiency of 90%	Passed

* Base Coat perm value based on Dryvit Genesis™
 ** Finish perm value based on Dryvit Quarzputz®
 *** AC 235 – Acceptance Criteria for EIFS Clad Drainage Wall Assemblies

c. Structural

TEST	TEST METHOD	CRITERIA	RESULTS
Tensile Bond	ASTM C 297/E 2134	Minimum 104 kPa (15 psi) – substrate or insulation failure	Minimum 213.6 kPa (31 psi)
Transverse Wind Load	ASTM E 330	Withstand positive and negative wind loads as specified by the building code	Minimum 4.3 kPa (90 psf)* 16 inch o.c. framing, ½ in sheathing screw attached at 203 mm (8 inch) o.c.

* All Dryvit components remain intact – for higher wind loads contact Dryvit Systems Canada.

d. Impact Resistance: In accordance with ASTM E 2486 (formerly EIMA Standard 101.86):

Reinforcing Mesh/Weight g/m ² (oz/yd ²)	Minimum Tensile Strengths	EIMA Impact Classification	EIMA Impact Range		Impact Test Results	
			Joules	(in-lbs)	Joules	(in-lbs)
Standard - 146 (4.3)	27 g/cm (150 lbs/in)	Standard	3-6	(25-49)	4	(36)
Standard Plus - 203 (6)	36 g/cm (200 lbs/in).	Medium	6-10	(50-89)	6	(56)
Intermediate - 407 (12)	54 g/cm (300 lbs/in).	High	10-17	(90-150)	12	(108)
Panzer® 15* - 509 (15)	71 g/cm (400 lbs/in).	Ultra High	>17	(>150)	18	(162)
Panzer 20* - 695 (20.5)	98 g/cm (550 lbs/in).	Ultra High	>17	(>150)	40	(352)

Detail Short Rolls - 146 (4.3)	27 g/cm (150 lbs/in).	n/a	n/a	n/a	n/a	n/a
Corner Mesh - 244 (7.2)	49 g/cm (274 lbs/in).	n/a	n/a	n/a	n/a	n/a
*Shall be used in conjunction with Standard Mesh (recommended for areas exposed to high traffic).						

e. Fire performance

TEST	TEST METHOD	CRITERIA	RESULTS
Fire Resistance	ASTM 119 CAN/ULC-S101	No effect on the fire resistance of a rated wall assembly Stay in place 15 minutes with no through cracks	Passed 1 hour Passed 2 hour Passed
Ignitability	NFPA 268	No ignition at 12.5 kw/m ² at 20 minutes	Passed
Noncombustibility*	CAN/ULC-S114	No flaming and retain 80% original test specimen weight	Passed
Full Scale Multi-Story Fire Test	UBC Std. 26-4 (formerly 17-6) CAN/ULC-S134 ¹	1. Resist vertical spread of flame within the core of the panel from one story to the next 2. Resist flame propagation over the exterior surface 3. Resist spread of vertical flame over the interior surface from one story to the next 4. Resist significant lateral spread of flame from the compartment of fire origin to adjacent spaces ¹ As per NBCC Article 3.1.5.5	Passed All
Intermediate Multi-Story Fire Test	NFPA 285 (UBC 26-9)	1. Resist flame propagation over the exterior surface 2. Resist vertical spread of flame within combustible core/component of panel from one story to the next 3. Resist vertical spread of flame over the interior surface from one story to the next 4. Resist lateral spread of flame from the compartment of fire origin to adjacent spaces	Passed
* Primus DM Only			

2. The Outsulation MD components shall be tested for:

a. Fire

TEST	TEST METHOD	CRITERIA	RESULTS
Surface Burning Characteristics	ASTM E 84 CAN/ULC-S102	All components shall have a: Flame Spread ≤ 25 Smoke Developed ≤ 450	Passed

b. Durability

TEST	TEST METHOD	CRITERIA	RESULTS
Reinforcing Mesh Alkali Resistance of Reinforcing Mesh	ASTM E 2098 (formerly EIMA 105.01)	> 21dN/cm (120 pli) retained tensile strength after exposure	Passed
EPS (Physical Properties) Density	ASTM C 303, D 1622	15.2-20.0 kg/m ³ (0.95-1.25 lb/ft ³)	Pass
Thermal Resistance	ASTM C 177, C 518	4.0 @ 4.4 °C (40 °F) 3.6 @ 23.9 °C (75 °F)	Pass Pass
Water Absorption	ASTM C 272	2.5 % max. by volume	Pass
Oxygen Index	ASTM D 2863	24% min. by volume	Pass
Compressive Strength	ASTM D 1621 Proc. A	69 kPa (10 psi) min.	Pass
Flexural Strength	ASTM C 203 ASTM E 84	172 kPa (25 psi) min.	Pass

<p>Flame Spread Smoke Developed</p>		<p>25 max. 450 max.</p>	<p>Pass Pass</p>
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1.05 SUBMITTALS

- A. Product Data: The contractor shall submit to the owner/architect the manufacturer's product data sheets describing products, which will be used on this project.
- B. Shop Drawings for Panelized Construction: The panel fabricator shall prepare and submit to the owner/architect complete drawings showing: wall layout, connections, details, expansion joints, and installation sequence.
- C. Samples: The contractor shall submit to the owner/architect two (2) samples of the Outsulation MD System for each finish, texture and color to be used on the project. The same tools and techniques proposed for the actual installation shall be used. Samples shall be of sufficient size to accurately represent each color and texture being utilized on the project.
- D. Test Reports: When requested, the contractor shall submit to the owner/architect copies of selected test reports verifying the performance of the Outsulation MD System.

1.06 QUALITY ASSURANCE

A. Qualifications

- 1. System Manufacturer: Shall be Dryvit Systems Canada. All materials shall be manufactured or sold by Dryvit and shall be purchased from Dryvit or its authorized distributors.
 - a. Materials shall be manufactured at a facility covered by a current ISO 9001:2000 certification. Certification of the facility shall be done by a registrar accredited by the American National Standards Institute, Registrar Accreditation Board (ANSI-RAB).
- 2. Contractor: Shall be knowledgeable in the proper installation of the Dryvit Outsulation MD System and shall be experienced and competent in the installation of Exterior Insulation and Finish Systems. Additionally, the contractor shall possess a current Outsulation MD System Trained Contractor Registration Certificate* issued by Dryvit Systems Canada.
 - a. For Outsulation PE installations, the contractor shall be enrolled in the Dryvit Infinity program and hold current certificate of registration.**
- 3. Insulation Board Manufacturer: Shall be listed by Dryvit Systems Canada, shall be capable of producing the expanded polystyrene (EPS) in accordance with the current Dryvit Specification for Insulation Board, DSC131, and shall subscribe to the Dryvit Third Party Certification and Quality Assurance Program.
- 4. Panel Fabricator: Shall be a contractor experienced and competent in the fabrication of architectural wall panels and shall possess a current Outsulation MD System Trained Contractor Registration Certificate* issued by Dryvit Systems Canada.
- 5. Panel Erector: Shall be experienced and competent in the installation of architectural wall panel systems and shall be:
 - a. The panel fabricator or
 - b. An erector approved by the panel fabricator or
 - c. An erector under the direct supervision of the panel fabricator

B. Regulatory Requirements:

- 1. The EPS shall be separated from the interior of the building as required by code (e.g. 15.9mm Type X Gypsum Sheathing).
- 2. The use and maximum thickness of EPS shall be in accordance with the applicable building codes.

C. Certification

- 1. The Outsulation MD System shall be recognized for the intended use by the applicable building code(s).

D. Mock-Up

- 1. The contractor shall, before the project commences, provide the owner/architect with a mock-up for approval.
- 2. The mock-up shall be of suitable size as required to accurately represent the products being installed, as well as each color and texture to be utilized on the project.
- 3. The mock-up shall be prepared with the same products, tools, equipment and techniques required for the actual applications. The finish used shall be from the same batch that is being used on the project.
- 4. The approved mock-up shall be available and maintained at the jobsite.
- 5. For panelized construction, the mock-up shall be available and maintained at the panel fabrication location.

E. Third-Party Inspection – For Outsulation PE, the owner shall employ the services of a third party inspector who shall at minimum follow the inspection guidelines as outlined in the Dryvit Infinity Program

1.07 DELIVERY, STORAGE AND HANDLING

- A. All Dryvit materials shall be delivered to the job site in the original, unopened packages with labels intact.
- B. Upon arrival, materials shall be inspected for physical damage, freezing or overheating. Questionable materials shall not be used.
 - 1. Materials shall be stored at the jobsite in a cool, dry location, out of direct sunlight, protected from inclement weather and other sources of damage. Minimum storage temperature shall be as follows:

- a. Demandit™, Revyvit™: 7 °C (45 °F)
 - b. Ameristone™, TerraNeo™ and Limestone™: 10 °C (50 °F)
 - c. DPR, PMR™ and E™ Finishes, Color Prime™, Primus, Genesis and NCB™: 4 °C (40 °F)
 - d. Custom Brick™ Finish: refer to Custom Brick Polymer Specification, DSC151
 - e. For other products, refer to specific product data sheets
2. Maximum storage temperature shall not exceed 38 °C (100 °F). **NOTE: Minimize exposure of materials to temperatures over 32 °C (90 °F). Finishes exposed to temperatures over 43 °C (110 °F) for even short periods may exhibit skinning, increased viscosity and should be inspected prior to use.**

1.08 PROJECT CONDITIONS

A. Environmental Requirements

1. Application of wet materials shall not take place during inclement weather unless appropriate protection is provided. Protect materials from inclement weather until they are completely dry.
2. At the time of application, the minimum air and wall surface temperatures shall be as follows:
 - a. Demandit, Revyvit: 7 °C (45 °F)
 - b. Ameristone, TerraNeo and Limestone: 10 °C (50 °F)
 - c. DPR, PMR and E Finishes, Color Prime, Primus, Genesis and NCB: 4 °C (40 °F)
 - d. Custom Brick Finish: refer to Custom Brick Polymer Specification, DS151
 - e. For other products, refer to specific product data sheets
3. These temperatures shall be maintained with adequate air ventilation and circulation for a minimum of 24 hours (48 hours for Ameristone, TerraNeo and Limestone) thereafter, or until the products are completely dry. Refer to published product data sheets for more specific information.

B. Existing Conditions: The contractor shall have access to electric power, clean water and a clean work area at the location where the Dryvit materials are to be applied.

1.09 SEQUENCING AND SCHEDULING

- A. Installation of the Outsulation MD System shall be coordinated with other construction trades.
- B. Sufficient manpower and equipment shall be employed to ensure a continuous operation, free of cold joints, scaffold lines, texture variations, etc.

1.10 LIMITED MATERIALS WARRANTY

- A. Dryvit Systems Canada shall provide a written moisture drainage and limited materials warranty against defective material upon written request. Dryvit shall make no other warranties, expressed or implied. Dryvit does not warrant workmanship. Full details are available from Dryvit Systems Canada.
- B. The applicator shall warrant workmanship separately. Dryvit shall not be responsible for workmanship associated with installation of the Outsulation MD System.

1.11 DESIGN RESPONSIBILITY

- A. It is the responsibility of both the specifier and the purchaser to determine if a product is suitable for its intended use. The designer selected by the purchaser shall be responsible for all decisions pertaining to design, detail, structural capability, attachment details, shop drawings and the like. Dryvit has prepared guidelines in the form of specifications, installation details, and product sheets to facilitate the design process only. Dryvit is not liable for any errors or omissions in design, detail, structural capability, attachment details, shop drawings, or the like, whether based upon the information prepared by Dryvit or otherwise, or for any changes which purchasers, specifiers, designers, or their appointed representatives may make to Dryvit's published comments.

1.12 MAINTENANCE

- A. Maintenance and repair shall follow the procedures noted in the Dryvit Outsulation MD System Application Instructions, DSC169.
- B. All Dryvit products are designed to minimize maintenance. However, as with all building products, depending on location, some cleaning may be required. See Dryvit publication DSC152 on Cleaning and Recoating.
- C. Sealants and flashings should be inspected on a regular basis and repairs made as necessary.

PART II PRODUCTS

2.01 MANUFACTURER

- A. All components of the Outsulation MD System shall be supplied or obtained from Dryvit or its authorized distributors. Substitutions or additions of materials other than specified will void the warranty.

2.02 MATERIALS

- A. Portland Cement: Shall be Type 10, meeting ASTM C 150, white or gray in color, fresh and free of lumps.
- B. Water: Shall be clean and free of foreign matter.

2.03 COMPONENTS

- A. Air/Water-Resistive Barrier Components: Used as a secondary barrier over sheathing type substrates and may be utilized as part of an air barrier system.
1. Noncementitious air /moisture and vapour barrier
 - a. Airsulation: a factory mixed, fully formulated water-based material for use over gypsum or cement based sheathings where a vapour barrier material is desired (not for use over wood sheathings).
 2. Noncementitious air and moisture barrier (vapour permeable)
 - a. Backstop™ NT: a factory mixed, fully formulated water-based material for use over all sheathing types. May be used over masonry type substrates following leveling coat of Genesis (wet).
 3. Cementitious: A liquid polymer based admixture field mixed with equal parts Type 10 Portland cement
 - a. Dryflex: May be used over gypsum and cement based sheathings as well as masonry and concrete where desired.
 4. Dryvit Grid Tape™: An open weave fiberglass mesh tape with pressure sensitive adhesive available in rolls 102 mm (4 in) wide by 91 m (100 yds) long. For Backstop NT, AquaFlash Mesh may be used on flat joints.
- B. Flashing Materials: Used to protect substrate edges at terminations.
1. Liquid Applied: An extremely flexible water-based polymer material, ready for use.
 - a. Shall be AquaFlash and AquaFlash Mesh
 2. Sheet Type:
 - a. Shall be Flashing Tape and Surface Conditioner
 - 1) Dryvit Flashing Tape™: A high density, polyethylene film backed with a rubberized asphalt adhesive available in rolls 102 mm (4 in), 152 mm (6 in) and 229 mm (9 in) wide by 23 m (75 ft) long..
 - 2) Dryvit Flashing Tape Surface Conditioner™: A water-based surface conditioner and adhesion promoter for the Dryvit Flashing Tape.
- C. Adhesives: Used to adhere the EPS to the air/water-resistive barrier, shall be compatible with the water-resistive barrier and the EPS.
1. Cementitious: A liquid polymer-based material, which is field mixed with Portland cement.
 - a. Shall be Primus or Genesis
 2. Factory Blended: A dry blend cementitious, copolymer-based product, field mixed with water.
 - a. Shall be Primus DM, Genesis DM, Genesis DMS, Rapidry DM™ 35-50 or Rapidry DM 50-75
- D. Insulation Board: Expanded Polystyrene meeting Dryvit Specification for Insulation Board, DSC131
1. Thickness of insulation board shall be minimum 51 mm (2 in).
 2. The back side of the insulation board shall have 6.4 mm x 25 mm (1/4 in x 1 in) grooves running vertically and spaced 305 mm (12 in) on center.
 3. The insulation board shall be manufactured by a board supplier listed by Dryvit Systems Canada.
- E. Insulation Board Closure Blocks: Expanded Polystyrene meeting Dryvit Specification for Insulation Board, DSC131. The Closure Blocks shall measure a minimum of 152 mm (6 in) in height.
- F. Dryvit Starter Strip
1. A 51 mm x 152 mm x 1.2 m (2 in x 6 in x 4 ft) piece of aged expanded polystyrene configured to receive the Dryvit Track™, Vent Track™ or Dryvit AquaDuct. It is required at the base of all walls, at base of horizontal terminations, and heads of windows and other openings.
- G. Dryvit Vent Assembly:
1. A 51 mm x 152 mm x 305 mm (2 in x 6 in x 12 in) piece of aged expanded polystyrene, which is configured to contain a formed aggregate matrix material and receive the Dryvit Vent Track or Dryvit AquaDuct. It is required at the base of walls and the base of horizontal terminations and is capable of draining water.
- H. Dryvit AP Adhesive: A moisture cure urethane-based adhesive used to attach the Dryvit Track and Vent Track to the air/water-resistive barrier.
- I. Dryvit Track:
1. A “J” shaped track complying with ASTM D 1784 and ASTM C 1063 located above the Dryvit Starter Strip.
- J. Dryvit Vent Track:
1. A “J” shaped track complying with ASTM D 1784 and ASTM C 1063 containing a slot for drainage and located above the Dryvit Vent Assembly, along the base of walls and horizontal terminations.
- K. Dryvit AquaDuct:
1. Located on top of the Dryvit Starter Strip within the “V” shaped moulded chamfer and fabricated in-situ using Dryvit AquaFlash® and AquaFlash Mesh.
- L. Base Coat: Shall be compatible with the EPS insulation board and reinforcing mesh(es).
1. Cementitious: A liquid polymer-based material, which is field mixed with Portland cement.
 - a. Shall be Primus or Genesis.
 2. Noncementitious: A factory-mixed, fully formulated, water-based product.
 - a. Shall be NCB™(for use in combustible construction only).
 3. Factory Blended: A dry blend cementitious, copolymer-based product, field mixed with water.

- a. Shall be Primus DM, Genesis DM, Genesis DMS, Rapidry DM 35-50 or Rapidry DM 50-75.
- 4. Noncombustible: For use with Outsulation MD NC
 - a. Shall be Primus DM.
- M. Reinforcing Mesh: A balanced, open weave, glass fiber fabric treated for compatibility with other system materials.

NOTE: Reinforcing meshes are classified by impact resistance and specified by weight and tensile strength as listed in Section 1.04.D.1.d.

 - 1. Shall be Standard, Standard Plus, Intermediate, Panzer 15, Panzer 20, Detail and Corner Mesh.
 - a. At minimum Standard mesh shall be used over the entire wall area in accordance with Outsulation MD Application instructions. Minimum mesh/mesh overlap shall be 75mm (3.0 in).
- N. Finish: Shall be the type, color and texture as selected by the architect/owner and shall be one or more of the following:
 - 1. Standard DPR (Dirt Pickup Resistance): Water-based, acrylic finish with integral color and texture, and formulated with DPR chemistry:
 - a. Quarzputz® DPR: Open-texture.
 - b. Sandblast® DPR: Medium texture.
 - c. Freestyle® DPR: Fine texture.
 - d. Sandpebble™ DPR: Pebble texture.
 - e. Sandpebble Fine DPR: Fine pebble texture.
 - 2. E: Water-based, lightweight acrylic coating with integral color and texture, and formulated with DPR chemistry:
 - a. Quarzputz E
 - b. Sandpebble E
 - c. Sandpebble Fine E
 - 3. Specialty: Factory mixed, water-based acrylic:
 - a. Ameristone: Multi-colored quartz aggregate with a flamed granite appearance.
 - b. Stone Mist™: Ceramically colored quartz aggregate.
 - c. Custom Brick: Acrylic polymer-based finish used in conjunction with a proprietary template system to create the look of stone, brick, slate or tile.
 - d. TerraNeo: 100% acrylic-based finish with large mica chips and multi-colored quartz aggregates.
 - e. Limestone: A premixed, 100% acrylic-based finish designed to replicate the appearance of limestone blocks.
 - 4. Elastomeric DPR (Dirt Pickup Resistance): Water-based, elastomeric acrylic finish with integral color and texture, and formulated with DPR chemistry:
 - a. Weatherlastic™ Quarzputz
 - b. Weatherlastic Sandpebble
 - c. Weatherlastic Sandpebble Fine
 - d. Weatherlastic Adobe
 - 5. Medallion Series PMR™ (Proven Mildew Resistance): Water-based, acrylic finish with integral color and texture and formulated with PMR chemistry:
 - a. Quarzputz PMR
 - b. Sandblast PMR
 - c. Freestyle PMR
 - d. Sandpebble PMR
 - e. Sandpebble Fine PMR
 - 6. Coatings, Primers and Sealers:
 - a. Demandit
 - b. Weatherlastic Smooth
 - c. Tuscan Glaze™
 - d. Revyvit
 - e. Color Prime™
 - f. Prymit™
 - g. SealClear™

PART III EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the Outsulation MD System, the contractor shall verify that the substrate:
 - 1. Is of a type listed in Section 1.04.C.1.
 - 2. Is flat within 6.4 mm (1/4 in) in a 1.2 m (4 ft) radius.
 - 3. Is sound, dry, connections are tight; has no surface voids, projections, or other conditions that may interfere with the Outsulation MD System installation or performance.

- B. Prior to installation of the Outsulation MD System, the architect or general contractor shall insure that all needed flashings and other waterproofing details have been completed, if such completion is required prior to the Outsulation MD application. Additionally, the contractor shall ensure that:
1. Metal roof flashing has been installed in accordance with Asphalt Roofing Manufacturers Association (ARMA) Standards,
 2. Openings are flashed in accordance with the Outsulation MD System Installation Details, DSC167, or as otherwise necessary to prevent water penetration.
 3. Chimneys, Balconies and Decks have been properly flashed.
 4. Windows, Doors, etc. are installed and flashed per manufacturer's requirements and the Outsulation MD System Installation Details, DSC167.
- C. Prior to the installation of the Outsulation MD System, the contractor shall notify the general contractor, and/or architect, and/or owner of all discrepancies.

3.02 PREPARATION

- A. The Outsulation MD materials shall be protected by permanent or temporary means from inclement weather and other sources of damage prior to, during, and following application until completely dry.
- B. Protect adjoining work and property during Outsulation MD installation.
- C. The substrate shall be prepared as to be free of foreign materials, such as oil, dust, dirt, form-release agents, efflorescence, paint, wax, water repellants, moisture, frost, and any other condition that may inhibit adhesion.

3.03 INSTALLATION

- A. The system shall be installed in accordance with the Dryvit Outsulation MD System Application Instructions, DSC169.
- B. The overall minimum base coat thickness shall be sufficient to fully embed the mesh. The recommended method is to apply the base coat in two (2) passes.
- C. Sealant shall not be applied directly to textured finishes or base coat surfaces. Dryvit Outsulation MD System surfaces in contact with sealant shall be coated with Demandit or Color Prime.
- D. High impact meshes shall be installed as specified at ground level, high traffic areas and other areas exposed to or susceptible to impact damage.

3.04 FIELD QUALITY CONTROL

- A. The contractor shall be responsible for the proper application of the Outsulation MD materials.
- B. Dryvit assumes no responsibility for on-site inspections or application of its products.
- C. If required, the contractor shall certify in writing the quality of work performed relative to the substrate system, details, installation procedures, workmanship and as to the specific products used.
- D. If required, the EPS supplier shall certify in writing that the EPS meets Dryvit's specifications.
- E. If required, the sealant contractor shall certify in writing that the sealant application is in accordance with the sealant manufacturer's and Dryvit's recommendations.

3.05 CLEANING

- A. All excess Outsulation MD System materials shall be removed from the job site by the contractor in accordance with contract provisions and as required by applicable law.
- B. All surrounding areas, where the Dryvit Outsulation MD System has been applied, shall be left free of debris and foreign substances resulting from the contractor's work.

3.06 PROTECTION

- A. The Outsulation MD System shall be protected from inclement weather and other sources of damage until dry and permanent protection in the form of flashings, sealants, etc. are installed.